



SANYO

**SANYO
8-TRACK CARTRIDGE
TAPE DECK
RD 8450
SERVICE MANUAL**



SPECIFICATIONS

Supply Voltage	AC 110/200/220/240V 50/60Hz
Power Consumption	Playback 120mA Record 150mA F. Wind 150mA
Number of Tracks	Eight
Tape Speed	3-3/4 IPS
Fast Wind Speed	11-1/4 IPS
Cabinet Dimensions	19-7/8" x 10-7/32" x 4-15/16"
Weight	Approx. 14.1 lbs
Frequency Response	50 - 12000 Hz
Wow and Flutter	0.25%
Signal to Noise Ratio	45 dB
Crosstalk between tracks	60 dB
Separation between channels	50 dB
Distortion	Less than 2%
Amplifier Input Sensitivity	Microphone -70 dB ±3 dB AUX -40 dB ±3 dB
Output Sensitivity	LINE OUT 0 dB ±3 dB
Bias and Erase Frequency	70 KHz

DISASSEMBLY INSTRUCTIONS

1. Removal of the Cabinet.

- a. Pull out the cartridge from the cartridge slot.
- b. Place the recorder in the OFF mode.
- c. Turn the recorder upside down on the soft cloth.
- d. Remove the 6 screws (Y13) from the bottom of cabinet.
- e. Replace the recorder to normal position.
- f. Remove the 2 screws (Y09) from the rear of cabinet.
- g. Pull out the chassis from cabinet.

2. Removal of the mechanism from chassis

- a. Remove the external washer (Y39) from F. wind lever.
- b. Remove the 4 screws (Y17) from the each corner of mechanism.
- c. Lift up the mechanism with care.

3. Partial Removal of the Amplifier Printed Circuit Board for Testing and Component Replacement.

- a. Pull out the chassis.
- b. Remove 3 screws (Y06) retaining Printed circuit board.

4. Removal and Replacement of Main belt.

- a. Place the chassis up side down.
- b. Remove the 4 screws (Y06) for flywheel bracket.
- c. Replace the new main belt.

NOTE

When the rubber belt is replaced, care should be taken not to permit oil or grease to stick to the belt. If a little grease or oil is put on the belt, use a soft clean cloth or cotton swab to remove the residue from the belt.

5. Removal of the Capstan and Flywheel Assembly

- a. Follow disassembly sequence described in paragraph 4.
- b. Remove the "E" ring (Y41) from flywheel shaft.
- c. Remove the counter pulley (244) and remove the flywheel (218) with care.

CAUTION

Irreparable damage to the flywheel and capstan assembly may result from improper handling. Extreme caution should be exercised to avoid bending the capstan. Always set this assembly down with the flywheel on the bottom.

ROUTING CLEANING AND OPERATION

1. Purpose.

Accumulation of tape oxide residue and other foreign material can cause wow and flutter, impaired erasure, reduced volume, and loss of high frequency response. These deposits are found on the tape head, capstan, and tape guides. Perform the cleaning procedures outlined below, after every one hundred hours of operation, or as determined after frequent visual inspection.

2. Cleaning Procedures.

- a. Tape head — Use a soft, clean cloth, or a cotton swab to remove most of the residue from the head. To soften hardened residue, use a cloth or swab, moistened with alcohol or tape head cleaning solution.

CAUTION

1. Do not saturate the cloth or swab, dampening is sufficient. Use only tape head cleaning solution or methyl alcohol. Other volatile solvents can damage the tape head by dissolving the insulating compounds surrounding the head pole piece.

2. Do not touch the head with any magnetized, metallic, or abrasive material. The highly polished pole pieces and delicate tape head can be easily damaged by these materials.

3. Use a room with adequate ventilation when cleaning with volatile liquids.

- b. Capstan — Move it by hand, while cleaning it with a cotton swab or cloth dampened with methyl alcohol.

- c. Chassis Mechanism — Use only a soft, clean cloth dampened in a cleaning solution to remove grease from belts, rollers, flywheel rims, and other drive parts. To clean sliding bars and lever, it is helpful to use a brush saturated with cleaning solution after the surfaces have been wiped with a cloth. Make sure the surfaces are dry after cleaning is completed. Lubricate the parts which normally require lubrication.

MECHANICAL TROUBLESHOOTING AND REPAIR

1. Unit Has Wow

- a. Inspect flywheel bracket (219) position in relation to the flywheel. Some endshake should be present.
- b. Inspect the main belt (215) on the motor. The belt should be on the motor.
- c. Check the belt (215), capstan (218), pulley (224) if there is any oil on them.
- d. When all of the above have been checked out. Replace the motor (247).

2. Slow Forward

- a. Check the belt (215) if there is any oil or grease on it.
- b. Check the motor printed circuit board.

3. Excessive Current Drain

This fault is usually caused by binding flywheel or defective motor.

How to check:

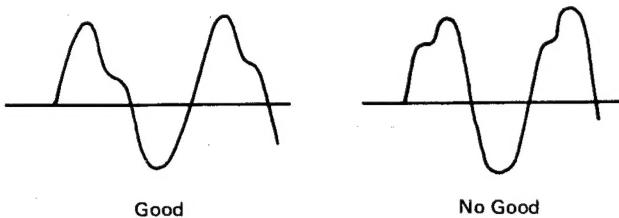
- a. Check endshake between the flywheel and capstan assembly and the flywheel bearing bracket.
- b. Does it turn easily? If not, lubricate it.
- c. Check the motor for excessive current drain.

ELECTRICAL ADJUSTMENT

1. Erase Head (R/P/E Head)

The bias frequency is approximately 70KHz. AC erasing system is employed for this head and the erasing current is checked through R101 & R201.

- a. Connect the VTVM to both end of R101 & R201 using shielded wire with clips.
- b. Set the recorder in RECORD position.
- c. Get 7 – 8 mV reading on VTVM by adjust of L101 (15mH) and bias waves should be as follows:



2. Azimuth & Height Adjustment.

This should be made only upon replacement of the Record/Play/Erase head.

- a. Connect the VTVM to line out jacks using connecting cable.
- b. Insert the 7.5KHz recorded cartridge and adjust the screw (Y47) to maximum reading on VTVM all channels (Front left, Front right, Rear left, Rear right) . . . (Height)
- c. Adjust the screw (Y46) to maximum reading on VTVM all channels (Front left, Front right, Rear left, Rear right) . . . (Azimuth)
- d. Measure Height and Azimuth whether they are correctly adjusted or not.
- e. If not repeat step b to c.

ELECTRICAL TROUBLESHOOTING

1. Dead In Record or Playback Operational Mode.

- a. If level meter lamps do not light when cartridge is put in check the power circuit.
- b. If motor runs properly, check Record/Play/Erase head wire if they are disconnected from Record/Playback head terminals. If not, check amplifier printed circuit board for open foil, delaminated foil (anchor to prevent future breaks), coil solder joints, and for broken connecting wires. A large magnifying bench lamp is helpful during this inspection as foil breaks are inconspicuous.
- c. If the unit does not respond to the above steps use a VTVM to verify that DC voltages on the unit correspond with typical operating voltages for test points indicated upon the schematic diagram. Start at the output stage and work toward the input stage.

2. Playback is Present, but Record is Distorted or Absent.

- a. Does recording lamp lights? If not, check the R/P switch whether it is fully pulled to record position or not.
- b. Can you monitor with microphone recording? If not only one channel, feed any signal to AUX jack of which channel can not monitor. If OK, check the microphone or its jack. If still not, check amplifier printed circuit board as paragraph b.
- c. Recording monitor is OK but record-playback is not OK. (both channels) Check OSC circuit if it works right. If so, base voltage of Tr-502, 503 will be positiveness.

3. Trouble shooting ARL.

- a. In case of quick ans strong effect of ARL:
 1. Check C501 and R501 for open or dried-up condition
- b. No ARL:
 1. Check ARL switch S111, 112, 113 for proper operation.
 2. Check Diode D501 and Q-102 (202) for proper operation.

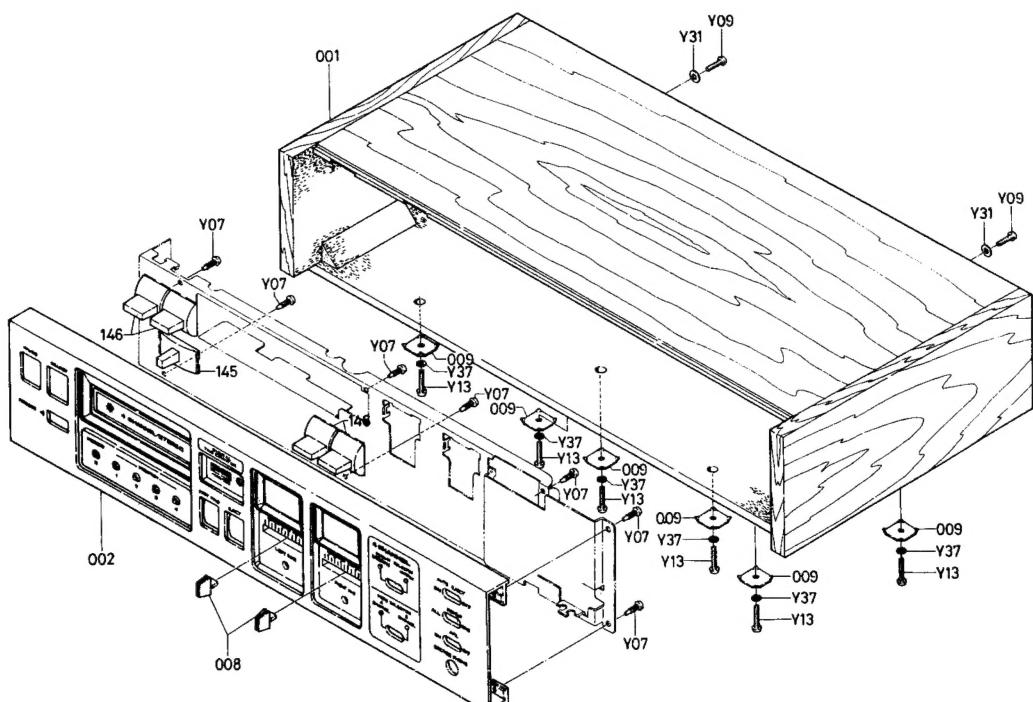
4. Playback is Weak or Distorted, or High Frequencies are Missing.

- a. Azimuth adjustment of the R/P/E head must be made whenever the head is replaced or the head mounting screws disturbed for any other reason. Azimuth adjustment procedure is described in paragraph 4-3-2.
- b. Visually inspect the R/P/E head pole pieces and head gap with a magnifying glass. The pole pieces should be smoothly polished and gap between the pole pieces as an almost invisible fine line. Due to normal wear, the R/P/E head gap and pole pieces will eventually wear to the point where high frequencies are lost or output is reduced.

PARTS LIST

Key No.	Part No.	Description	Q'ty	Key No.	Part No.	Description	Q'ty
PACKING							
	141-6-132T-46801	Individual carton	1	101	141-2-311T-09104	Chassis	1
	141-6-144T-10900	Plastic filler, Right side	1	102	141-2-312T-08201	Sub chassis	1
	141-6-144T-11200	Plastic filler, Left side	1	103	141-2-411T-04700	Plate nut, Power transformer	2
	141-6-316T-54600	Pad, Bottom	1	104	141-2-315T-07801	Reinforcement	2
	141-6-316T-54700	Pad, Top	1	105	141-2-377T-08601	Bracket, P.C.B.	1
	123-6-453R-00100	Serial number sheet	1	106	141-2-377T-12000	Bracket, P.C.B.	1
R-G52708		Polyethylene bag 450 x 700mm, Set	1	107	141-2-365T-22000	Bracket, Pause switch	1
R-G52710		Polyethylene bag 150 x 250mm, Patch cord	1	108	141-2-747T-03501	Bracket, Select lever	1
	141-6-472T-05603	Caution label, Voltage	1	109	141-2-741T-39800	Lever, PAUSE/EJECT/SELECT	3
	141-6-411T-53400	Instruction booklet	1	110	141-2-853T-32100	Plate spring, Pause	1
ACCESSORY							
	4-243T-03101 or 4-243T-10201	Patch cord	4	111	141-2-741T-55900	Lever, F. Forward	1
	4-235R-11801 4-235R-11802	AC plug assembly, SIEMENS 2 pin AC plug assembly, ENGLAND 2 pin	1	112	141-2-747T-03500	Bracket, Lever shaft	1
CABINET							
001	141-0-111T-04501	Cabinet assembly	1	113	141-2-741T-36400	Lever, RECORD	1
002	141-0-122T-00500	Front panel assembly	1	114	141-0-842T-00401	Slide assembly, R/P change	1
008	141-0-164T-00500	Slide knob assembly, Volume	2	115	141-0-747T-00601	Bracket assembly, R/P slide guide	1
009	141-2-457T-02200	Special washer	6	116	141-2-843T-00400	Rod, R/P change	1
				117	141-2-741T-36301	Lever, RECORD	1
				118	141-2-747T-03601	Bracket, Lever (117)	1
				119	141-2-852T-23500	Spring, R/P switch	1
				120	141-2-851T-48600	Coil spring, Lever (117)	1
				121	141-2-367T-14100	Bracket, Headphone socket	1
				122	141-0-365T-00500	Bracket, REPEAT/AUTO-EJECT/ CHANNEL switch	1
				124	141-2-683T-22300	Ring, Record lever	2
				125	141-2-751T-38001	Shaft, Eject & Fast Forward lever	2
				126	141-2-751T-38100	Shaft, Record lever (113)	1
				127	141-2-751T-38200	Shaft, Record lever (117, 118)	1
				128	141-2-851T-50200	Coil spring, Eject & select lever	2
				130	141-2-365T-13201	Bracket, Headphone socket	1

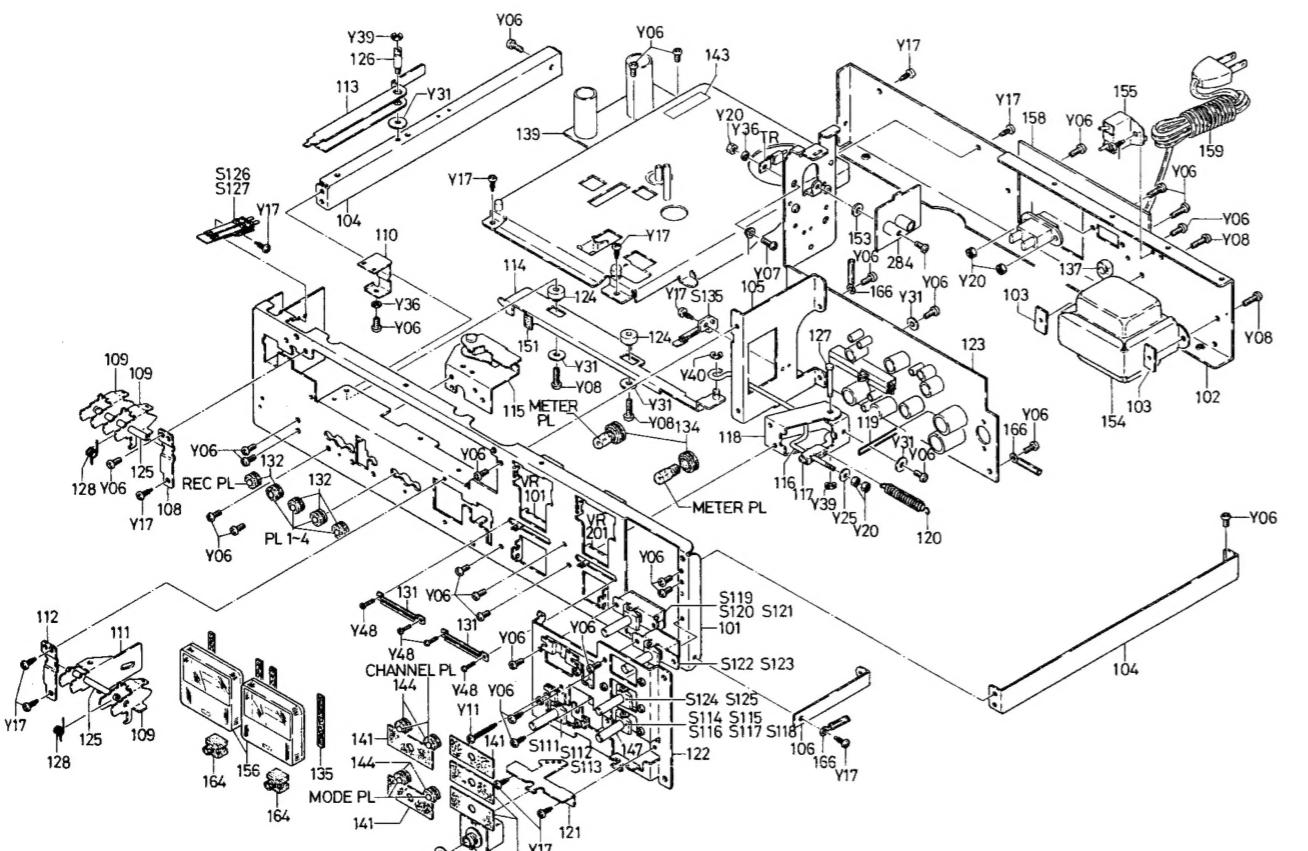
CABINET EXPLODED VIEW



PARTS LIST

Key No.	Part No.	Description	Q'ty
CHASSIS			
131	141-2-315T-08500	Reinforcement, Volume guide	2
132	123-2-445R-01400	Rubber cushion, Pilot lamp	5
133	147-2-368T-02300	Heat sink, 2SB481	1
134	123-2-445R-12700	Rubber cushion, Pilot lamp	2
135		Felt pad 5 x 28 x 1mm, Meter sheet	4
136	141-2-464T-11900	Fixer, Lead retaining	1
137	141-2-464T-11800	Cord fixer, Power cord	1
138	141-2-377T-09200	Bracket, SCR P.C.B.	1
140	141-2-731T-23700	Slide, Record lock	1
141	141-2-241T-09800	Lug, Switch	5
142	141-2-445T-10800	Rubber cushion, Headphone socket	1
143	141-6-474T-01100	Identification label	1
144	147-2-374T-03501	Rubber cushion, Pilot lamp	4
145	141-0-162T-01100	Lever knob assembly, Record	1
146	141-0-162T-01200	Lever knob assy., Pause>Select/ Eject/FWD	4
147	141-2-156T-02800	Cup knob, Power/ARL/Track	5
148	141-2-363T-03400	Bracket, CR module	1
149	141-2-472T-01200	Lug, Lead retaining	3
150	141-2-472T-01000	Lug, Lead retaining	11
151	141-2-445R-03200	Rubber cushion,R/P slide	1
152	R-G52706	Fiber sheet 15 x 15mm, SVR	1
153	R-VF331005	Fiber washer 3.3 x 10 x 0.5mm	2
169	141-2-367T-24500	Bracket, Voltage selector	1
170	141-2-322T-19601	Shield plate, DIN socket	1
171	141-2-464T-15000	Fixer, RECORD/PLAY switch spring	1
172	141-2-363T-03100	Bracket, Capacitor	1
173	141-2-143T-17301	Marking plate, Voltage selector	1

CHASSIS EXPLODED VIEW



PARTS LIST

Key No.	Part No.	Description	Q'ty
ELECTRICAL PARTS			
C101,110, 113,114, 201,210, 213,214, 120,123, 301,304, 220,223, 401,404, 307,407		Electrolytic 2.2μF 25V	18
C503		Electrolytic 22μF 25V	1
C124,224	R-C9887	Electrolytic 33μF 25V	2
C504	R-C9977	Electrolytic 220μF 25V	1
C121,221		Electrolytic 220 + 220μF 25V	1
C505		Electrolytic 1000μF 25V	1
C512		Electrolytic 100μF 35V	1
C511,513		Electrolytic 100μF 35V	2
C514,516	R-C9933	Electrolytic 1000μF 35V	2
C506,507		Electrolytic 220 + 470μF 35V	1

Key No.	Part No.	Description	Q'ty
MECHANISM			
263	141-2-851T-38801	Coil spring, Pressure	1
266	R-H32405	Spring pin 3φ x 10mm, Eject lever	1
271	141-0-741T-35391	Fast forward roller lever assembly	1
272	141-0-671T-00701	Stopper assembly	1
273	141-2-735T-09501	Rod	1
274	147-2-751T-03800	Shaft, Rack side pressure lever	1
275	141-2-851T-46300	Spring coil	1
276	141-2-461T-17800	Pipe, Rod	1
277	141-0-035T-00900	Fast forward lever assembly	1
278	141-2-751T-55200	Shaft, Fast forward lever assembly (277)	1
279	141-2-851T-50800	Coil spring, F. Forward lever	1
280	141-2-851T-54801	Coil spring, Stopper cam	1
282	141-2-421T-12900	Special screw, P.C.B. mounting	3
283	4-226T-33503	Printed circuit board, Switch (S138)	1
284	141-0-017T-02900	Printed circuit board assembly, Motor	1
285	141-0-671T-00400	Cam assembly, Pilot lamp switch	2
286	147-2-851T-03400	Coil spring, Head bracket assembly	1
287	123-2-472R-00400	Lug, Coil spring (286)	1
288	141-2-853T-34200	Plate spring, Eject	1

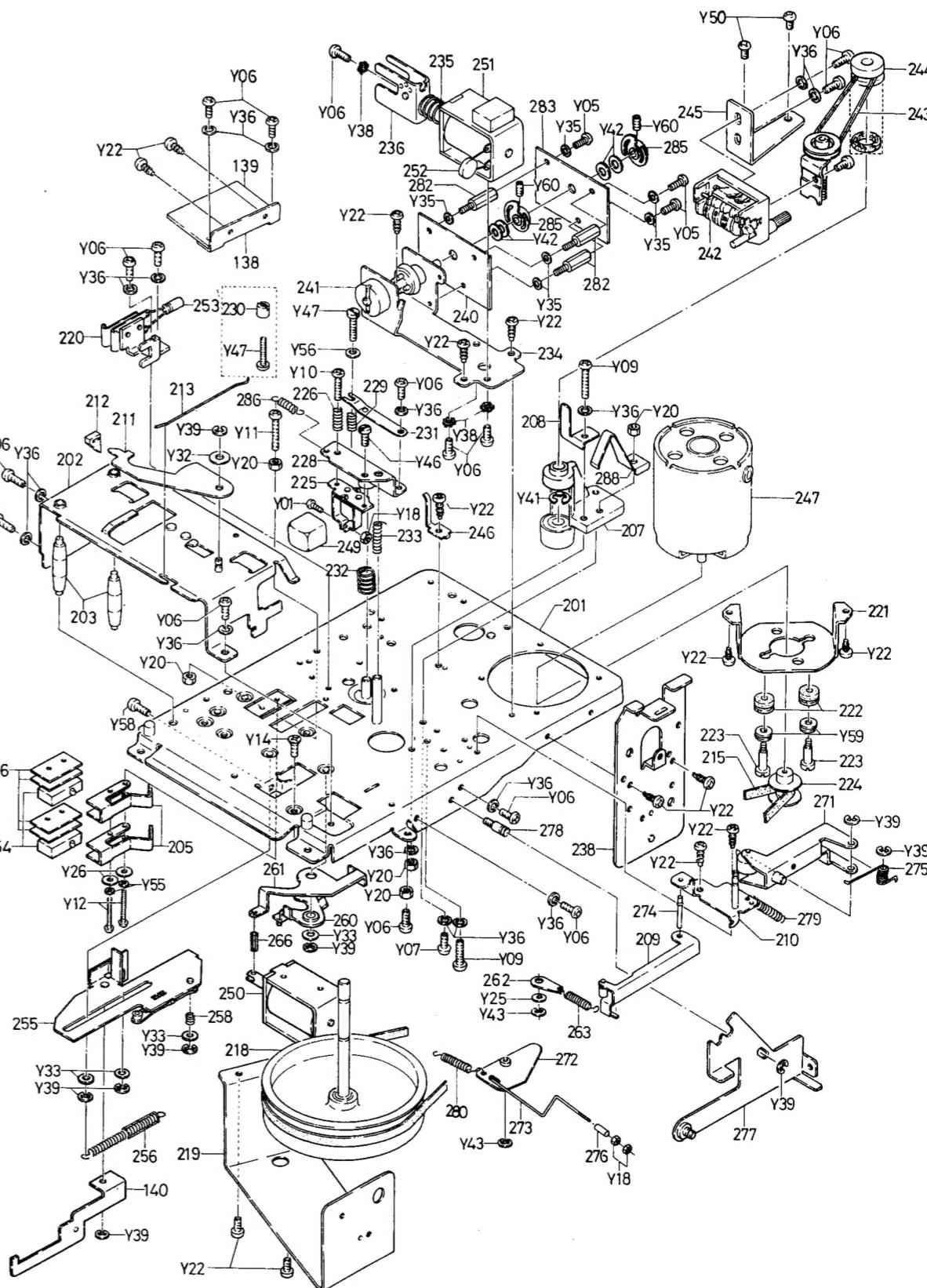
MECHANISM

	TM-8060	MECHANISM COMPLETE	
201	141-0-026T-00500	Chassis assembly	1
202	141-0-312T-07392	Sub chassis assembly	1
203	141-2-547T-00200	Roller, Pack side pressure	2
205	141-2-853T-30600	Plate spring, Lower switch	2
206	141-2-246T-05300	Fiber sheet, Power switch	2
207	141-0-573T-00601	Bearing assembly, Flywheel	1
208	147-2-821T-01500	Bracket, Tape rolling in stopper	1
209	141-0-741T-35192	Pack side pressure roller assembly	1
210	141-0-747T-03391	Bracket assembly, Roller lever	1
211	141-2-715T-04200	Brake lever, Cartridge holding	1
212	141-2-712T-01601	Brake shoe, Cartridge holding	1
213	141-2-852T-16501	Spring wire, Brake lever	1
215	141-2-561T-02702	Flat belt	1
218	141-0-521T-01102	Flywheel assembly	1
219	141-0-524T-04191	Bracket assembly, Flywheel	1
220	141-0-821T-00101	Tape guide assembly	1
221	141-2-378T-06000	Bracket, Motor	1
222	123-2-445R-01400	Rubber cusion, Motor	2
223	141-2-421T-08301	Special screw, Motor	2
224	141-0-661T-68099	Motor pulley assembly	1
225	141-0-375T-00301	Bracket assembly, Head	1
226	147-2-851T-00900	Coil spring, Head azimuth	1
228	141-0-375T-00400	Bracket assembly, Head	1
229	147-2-851T-00900	Coil spring, Head height	1
230	141-2-417T-05700	Stud nut, Head height	1
231	147-2-853T-01800	Plate spring, Head height	1
232	147-2-851T-02400	Coil spring, Head push up (large)	1
233	147-2-851T-02501	Coil spring, Head push up (small)	1
234	141-2-675T-01500	Bracket, Track change cam	1
235	147-2-851T-00700	Coil spring, Plunger	1
236	147-0-351T-01991	Bracket assembly, Track change	1
237	141-2-131T-25500	Fiber sheet cover, Governor P.C.B.	1
238	141-2-377T-11900	Bracket, Motor P.C.B.	1
239	R-YF301010	Fiber washer 3 x 10 x 1mm, Motor P.C.B.	1
240	4-226T-33502	Ptinted Circuit Board, P.L. switch S137	1
241	141-0-671T-00699	Cam assembly, Track change	1
242	141-2-811T-02700	Tape counter	1
243	141-2-561T-10900	Square belt, Tape counter	1
244	141-0-661T-66691	Counter pulley assembly	1
245	141-2-812T-03300	Bracket, Tape counter	1
246	141-2-853T-24400	Plate spring, Prevent reverse round	1
247	4-527T-06000	DC motor	1
249	4-242T-16071	Record/Play/Erase Head	1
250	4-264T-02501	Plunger, Eject	1
251	4-264T-02800	Plunger, Track change	1
252	R-S1234	Diode FR-2	1
253	4-231T-11901	Mylar capacitor 0.1μF ±20% 50WV	1
254	141-0-731T-139992	Micro switch, Power ON-OFF	2
256	141-2-851T-46501	Slide assembly, Eject	1
258	141-2-851T-46800	Coil spring, Slide assembly	1
260	141-0-671T-03991	Coil spring, Stopper lever pressure	1
261	141-2-741T-35201	Eject cam assembly	1
262	141-2-492T-03800	Lever, Eject	1
		Lug	1

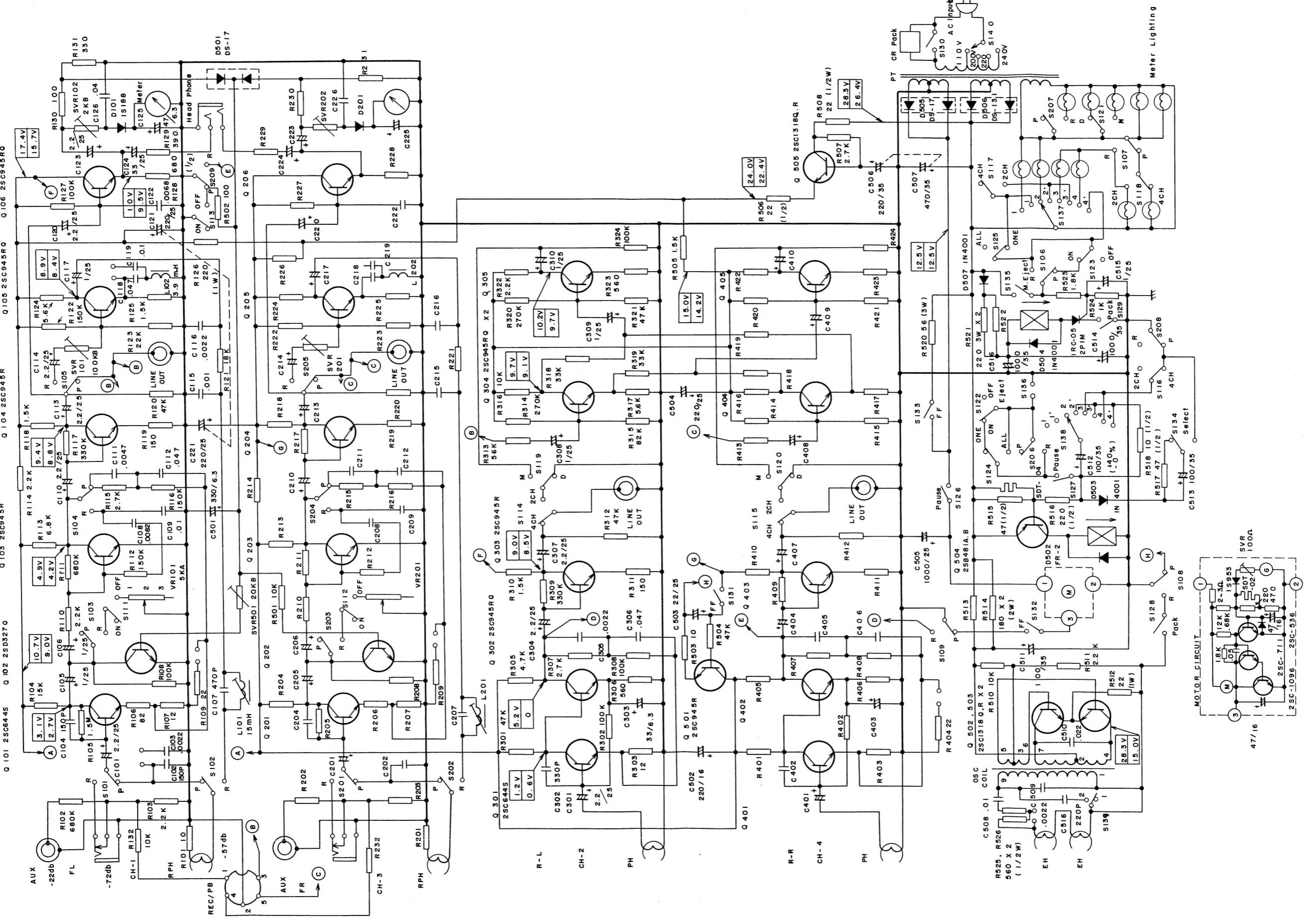
MOUNTING PARTS

Y01	R-Y012006	Screw, Pan Hd. 2 x 6mm	1
Y04	R-Y012318	Screw, Pan Hd. 2.3 x 18mm	2
Y05	R-Y012606	Screw, Pan Hd. 2.6 x 6mm	4
Y06	R-Y013006	Screw, Pan Hd. 3 x 6mm	64
Y07	R-Y013008	Screw, Pan Hd. 3 x 8mm	1
Y08	R-Y013010	Screw, Pan Hd. 3 x 10mm	4
Y09	R-Y013012	Screw, Pan Hd. 3 x 12mm	5
Y10	R-Y013014	Screw, Pan Hd. 3 x 14mm	1
Y11	R-Y013035	Screw, Pan Hd. 3 x 35mm	2
Y13	R-Y014016	Screw, Pan Hd. 4 x 16mm	6
Y14	R-Y023004	Screw, Flat Hd. 3 x 4mm	1
Y17	R-Y113006	Tapping screw, Pan Hd. 3 x 6mm	1
Y18	R-Y232000	Hex. nut, 2mm	1
Y19	R-Y232600	Hex. nut, 2.6mm	1
Y20	R-Y233000	Hex. nut, 3mm	10
Y21		Special nut, 3mm	2
Y22	R-Y153006	Tapping screw, Bind Hd. 3 x 6mm	12
Y25	R-Y32300605	Washer, 3 x 6 x 0.5mm	4
Y26	R-Y32308005	Washer, 3 x 8 x 0.5mm	10
Y31	R-Y32331310	Washer, 3.3 x 13 x 1mm	6
Y33	R-Y32401008	Washer, 4 x 10 x 0.8mm	4
Y34	R-Y332300	Spring washer, 2.3mm	2
Y35	R-Y332600	Spring washer, 2.6mm	5
Y36	R-Y333000	Spring washer, 3mm	14
Y38	R-Y343000	External tooth lock washer, 3mm	5
Y39	R-Y353000	"E" ring, 3mm	13
Y40	R-Y354000	"E" ring, 4mm	1
Y41	R-Y355000	"E" ring, 5mm	1
Y42	R-YN410705	Nylon washer 4.1 x 6.5 x 0.5mm	2
Y43	R-Y352000	"E" ring, 2mm	2
Y45		Screw, Tap-tight 3 x 10mm	1
Y46	R-Y013008	Screw, Pan Hd. Ø3 x 8mm	1
Y47	R-Y013016	Screw, Pan Hd. Ø3 x 16mm	1
Y48	R-Y012004	Screw, Pan Hd. 2 x 4mm	4
Y50	R-Y013004	Screw, Pan Hd. 3 x 4mm	9

MECHANISM EXPLODED VIEW



SCHEMATIC DIAGRAM



WIRING DIAGRAM

